

SEISMIC SAFETY COMMISSION

1755 CREEKSIDE OAKS DRIVE, SUITE 100
SACRAMENTO, CA 95833
(916) 263-5506
(916) 263-0594 FAX
INTERNET: www.seismic.ca.gov



Seismic Safety Commission
AB 16 Advisory Committee
Minutes of Meeting
Thursday, November 21, 2002
The Bank of America Building
1130 K Street, Suite 102
Sacramento, CA 95814

Members Present

Commissioner Stan Moy, *Chair*
Commissioner Dan Shapiro
Commissioner Bill Gates
Commissioner Andrew Adelman
Dennis Bellet, DSA
Thomas Duffy, CASH
Steve Newsom, CDE
David Clinchy, Los Rios Comm. Coll. District
Lupita Cortez, CSBA
Bill Holmes, SEAOC
Gary McGavin, AIA

Members Absent

Gini Krippner, CDF, State Fire Marshal's Office
Dick Phillips, EERI

Staff Present

Henry Reyes
Richard McCarthy
Henry Sepulveda
Karen Cogan
Abby Browning

Interested Guests Present

Walt Schaff, DOF
Suzanne Reese, OPSC
Engel Navea, OPSC
Ernest Silva, CANEC
Jim Hackett, DSA
Kurt Cooknick, AIA
Gin Yang-Staehlin, Chancellor's Office
Community Colleges
Gene Erbin, EdVoice
Lynn Lenzi, EdVoice

I. Call to Order/ Introductions

Chairman Moy called the meeting to order at 10:05 am. He welcomed everyone to the committee meeting and thanked all the participants for their input in the report thus far.

Introductions were made and Commissioner Gates outlined the proceedings for this meeting. He told the committee that today was the last chance to make significant changes to the document before it goes to the Commission for approval.

Chairman Moy thanked Commissioner Gates and then asked Mr. Tom Duffy to speak on the successful passion of Proposition 47.

SEISMIC SAFETY COMMISSION

1755 CREEKSIDE OAKS DRIVE, SUITE 100
SACRAMENTO, CA 95833
(916) 263-5506
(916) 263-0594 FAX
INTERNET: www.seismic.ca.gov



Mr. Duffy said that the proposition was successful with a 59% approval rate. Proposition 47 came from AB 16 and is the largest bond measure ever passed in California. With this proposition, Mr. Duffy said that there are now great opportunities to adequately house children in state schools in California.

Chairman Moy thanked Mr. Duffy for his comments.

Mr. Gary McGavin mentioned that California has recently lost two the principle architects for funding for California Schools, Senator Leroy Greene and Jim Murdoch.

Mr. Duffy commented that the passage of Prop. 47 can stand as a monument for the service that both of these men contributed to the California school system.

II. Presentation by William Holmes

Mr. William Holmes, a structural engineer with Rutherford & Chekene, began his presentation on Performance Based Seismic Engineering by giving the committee some background information on the codes and design procedures that are used for buildings.

Mr. Holmes said that in the 30s and 40s, California structural engineers set up some performance standards for seismic engineering that are basically still followed today.

He began explaining the codes to the rest of the committee. Mr. Holmes said that the most important and difficult aspect in understanding the code is the difference between linear and non-linear behaviors of structural systems.

He said that it is not practical or economical to design buildings to remain linear in an earthquake so we assume it gets damaged. This non-linear behavior is what really happens in a building during an earthquake, but to directly analyze and design for non-linear behavior is very complex.

However, our increased understanding and ability to handle non-linear design has enabled performance based earthquake engineering to be developed. It cannot be done with linear analysis.

Mr. Holmes mentioned a couple of documents that define performance based earthquake engineering. *Vision 2000* and *FEMA 356* are nationally accepted documents.

He said the whole thing is based upon seismic performance objectives and that is basically the desired building performance, which can be described in many different ways.

SEISMIC SAFETY COMMISSION

1755 CREEKSIDE OAKS DRIVE, SUITE 100
SACRAMENTO, CA 95833
(916) 263-5506
(916) 263-0594 FAX
INTERNET: www.seismic.ca.gov



Mr. Holmes mentioned that there were two kinds of performances in a building, structural and non-structural. He went on to explain the different levels of performance states from no damage to right before collapse. There are many ranges between these two levels. He pointed out on a graphic that the performance standard for new buildings is slightly above “Life Safety” and that the performance standard for schools is slightly above the code for new buildings.

Commissioner Andrew Adelman asked if this information was the consensus or an opinion of an individual.

Mr. Holmes answered by saying that the performance expected from new buildings was referenced in the FEMA 356 document, but that the expected performance for schools was his own opinion. He said that these opinions have been borne out by performance in real earthquakes.

Mr. Holmes said that from a design standpoint, an engineer would have two choices with this method in converting non-Field Act buildings to schools. First, the building could be shown to meet all the prescriptive requirements of the code for new buildings. Secondly, Performance Based Seismic Engineering could be used to show that the building will provide an equivalent student safety level.

He said that when you use Performance Based Seismic Engineering, the critical components are determined in your analysis so you will know which components are very important to ensure the performance of your building and that need to be confirmed in the field by testing and/or inspections.

Mr. Holmes said, in his opinion, the development of accepted performance based seismic engineering enables the evaluations and retrofit of existing buildings for the use of schools. Additional regulations are needed to specify a performance standard level that can be translated into acceptability criteria in documents like FEMA 356.

Chairman Moy thanked Mr. Holmes for his presentation.

Commissioner Shapiro commented that Mr. Holmes presentation was very clear and concise when explain what they are talking about with performance based analysis. What they are trying to do with performance based analysis is consider the parts of the buildings individually and make a prediction as to how that particular element will perform in an earthquake. This makes it more accurate to produce the performance expectation of the buildings.

There was discussion from the committee about what should go into the justification of the report on performance based seismic engineering.

SEISMIC SAFETY COMMISSION

1755 CREEKSIDE OAKS DRIVE, SUITE 100
SACRAMENTO, CA 95833
(916) 263-5506
(916) 263-0594 FAX
INTERNET: www.seismic.ca.gov

**III. Review of the Final Draft Document**

The Committee began the review of the final draft document going through each section individually. Several editorial comments were made and there were some formatting suggestions. Major changes in substance took place in the executive summary and the justification.

In the executive summary, the committee decided that it was important to define equivalent pupil safety standard as defined in Title 24 of the California Building Standards Code.

The justification section was changed entirely to reflect the committee's opinion on the importance of performance based seismic engineering in the conversion of non-Field Act buildings to school buildings. Mr. Holmes provided a written statement that was edited and crafted to fit the committee's suggestions of the justification for their finding.

A few minor changes were made to the recommendations section of the report and overall, the committee was happy with the outcome of the document.

IV. Approval of the Report

Commissioner Moy once again thanked the committee and participants for their tireless work in the creation of this document. He then thanked each Commissioner for their help in today's meeting by reviewing particular sections.

The Committee unanimously voted to approve the document, with minor editorial changes to be made by Commissioner Gates, and send it to the California Seismic Safety Commission for review and approval.

Mr. McGavin noted that Mehendra Meta had been present at the last meeting and needed to be added to the minutes.

With that change, the Committee voted unanimously to approve the minutes from the October meeting, with the exception of Commission Adelman due to his absence in October.

Chairman Moy thanked the committee and staff once again for all of their work.

The meeting adjourned at 2:45pm.